Air Quality Technical Report

Mykawa Road
Beltway 8 to
Farm-to-Market Road (FM) 518

Brazoria and Harris Counties, Texas

CSJs: 0912-31-319 and 0912-72-564

August 6, 2019

The environmental review, consultation, and other actions required by applicable Federal environmental laws for this project are being, or have been, carried-out by TxDOT pursuant to 23 U.S.C. 327 and a Memorandum of Understanding dated December 16, 2014, and executed by FHWA and TxDOT

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Attachments

1.0 Introduction

The City of Pearland, in cooperation with the Texas Department of Transportation (TxDOT) Houston District, proposes to reconstruct and widen the existing Mykawa Road between Beltway 8 and Farm-to-Market Road (FM) 518 to include two 12-foot travel lanes in each direction with a 16-foot divided median. The proposed roadway would require approximately 4.6 acres of new right-of-way and would be constructed within a 100-foot right-of-way width and include curb and gutter with underground drainage.

A 10-foot shared-use path is proposed on the west side the roadway for the entire length of the project. A 6-foot sidewalk is proposed on the east side from FM 518 to McHard Road.

The project would also include storm water drainage and detention, landscaping, street lighting, modifications to three traffic signals, as warranted. A project location map is included as **Attachment A**.

2.0 Air Quality

2.1 National Ambient Air Quality Standards–Transportation Conformity

This project is located within an area that has been designated by the U.S. Environmental Protection Agency (EPA) as a marginal nonattainment area for the 2015 ozone National Ambient Air Quality Standards (NAAQS) and moderate nonattainment for the 2008 ozone NAAQS; therefore, transportation conformity rules apply. In accordance with 40 CFR 93.109(c), transportation conformity to the new 2015 ozone standard is required by August 3, 2019 (one year after the effective date).

Both the Houston-Galveston Area Council's (H-GAC) 2040 Regional Transportation Plan (RTP) and 2019-2022 Transportation Improvement Program (TIP) were initially found to conform to the Texas Commission on Environmental Quality (TCEQ) State Implementation Plan (SIP) by the Federal Highway Administration (FHWA) and the Federal Transit Administration (FTA) on September 11, 2015 and May 25, 2018, respectively; however, the proposed project is not consistent with this conformity determination, because the Control Section Job Number (CSJ) is incorrectly listed. TxDOT will not take final action on this environmental document until the proposed project is consistent with a currently conforming RTP and TIP. The relevant RTP and TIP pages are included as **Attachment B**.

2.2 Hot Spot Analysis

The project is not located within a carbon monoxide (CO) or particulate matter (PM) nonattainment or maintenance area; therefore, a project level hot-spot analysis is not required.

2.3 Carbon Monoxide Traffic Air Quality Analysis (TAQA)

Traffic data for the estimated time of completion (ETC) year 2023 and design year 2040 is 12,300 vehicles per day (vpd) and 18,000 vpd, respectively. A prior TxDOT modeling study and previous analyses of similar projects demonstrated that it is unlikely that the carbon monoxide standard would ever be exceeded as a result of any project with an average annual daily traffic (AADT) below 140,000. The AADT projections for the project do not exceed 140,000 vehicles per day; therefore a Traffic Air Quality Analysis was not required. The traffic data is included as **Attachment C**.

2.4 Mobile Source Air Toxic (MSATs)

The purpose of this project is to improve safety and mobility by widening and reconstructing Mykawa Road. This project has been determined to generate minimal air quality impacts for Clean Air Act criteria pollutants and has not been linked with any special mobile source air toxic (MSAT) concerns. As such, this project will not result in changes in traffic volumes, vehicle mix, basic project location, or any other factor that would cause a meaningful increase in MSAT impacts of the project from that of the no-build alternative.

Moreover, EPA regulations for vehicle engines and fuels will cause overall MSAT emissions to decline significantly over the next several decades. Based on regulations now in effect, an analysis of national trends with EPA's MOVES2014 model forecasts a combined reduction of over 90 percent in the total annual emissions rate for the priority MSAT from 2010 to 2050 while vehicle-miles of travel are projected to increase by over 45 percent (Updated Interim Guidance on Mobile Source Air Toxic Analysis in National Environmental Policy Act [NEPA] Documents, FHWA, October 12, 2016 - http://www.fhwa.dot.gov/environment/air_quality/air_toxics/policy_and_guidance/msat/index.cfm).

This will both reduce the background level of MSAT as well as the possibility of even minor MSAT emissions from this project.

2.5 Congestion Management Process/System

The congestion management process (CMP) is a systematic process for managing congestion that provides information on transportation system performance and on alternative strategies for alleviating congestion and enhancing the mobility of persons and goods to levels that meet state and local needs. The project was developed from the H-GAC's CMP, which meets all requirements of 23 Code of Federal Regulations (CFR) 450.320 and 500.109, as applicable. The CMP was adopted by H-GAC on January 2015.

The region commits to operational improvements and travel demand reduction strategies at two levels of implementation: program level and project level. Program level commitments are inventoried in the regional CMP, which was adopted by H-GAC; they are included in the financially constrained RTP, and future resources are reserved for their implementation.

The CMP element of the plan carries an inventory of all project commitments (including those resulting from major investment studies) that details type of strategy, implementing responsibilities, schedules, and expected costs. At the project's programming stage, travel demand reduction strategies and commitments will be added to the regional TIP or included in the construction plans. The regional TIP provides for programming of these projects at the appropriate time with respect to the single occupancy vehicle (SOV) facility implementation and project-specific elements.

Committed congestion reduction strategies and operational improvements within the study boundary will consist of construction and upgrade of park and ride facilities. Individual projects are listed in **Table 1**.

Table 1 - Congestion Management Process Strategies

Operational Improvements in Travel Corridor		
Location	**Type**	**Implementation Date**
Fuqua Park & Ride	Fuqua & South Point Park & Ride Ramp Modification	2025
SH 288 & FM 518	Park & Ride	2023

Source: H-GAC 2045 RTP.

In an effort to reduce congestion and the need for SOV lanes in the region, TxDOT and H-GAC will continue to promote appropriate congestion reduction strategies through the Congestion Mitigation and Air Quality Improvement (CMAQ) program, the CMP, and the RTP. The congestion reduction strategies considered for this project would help alleviate congestion in the SOV study boundary, but would not eliminate it.

Therefore, the proposed project is justified. The CMP analysis for added SOV capacity projects in the Transportation Management Area (TMA) is on file and available for review at H-GAC.

2.6 Construction and Post-Construction Emissions

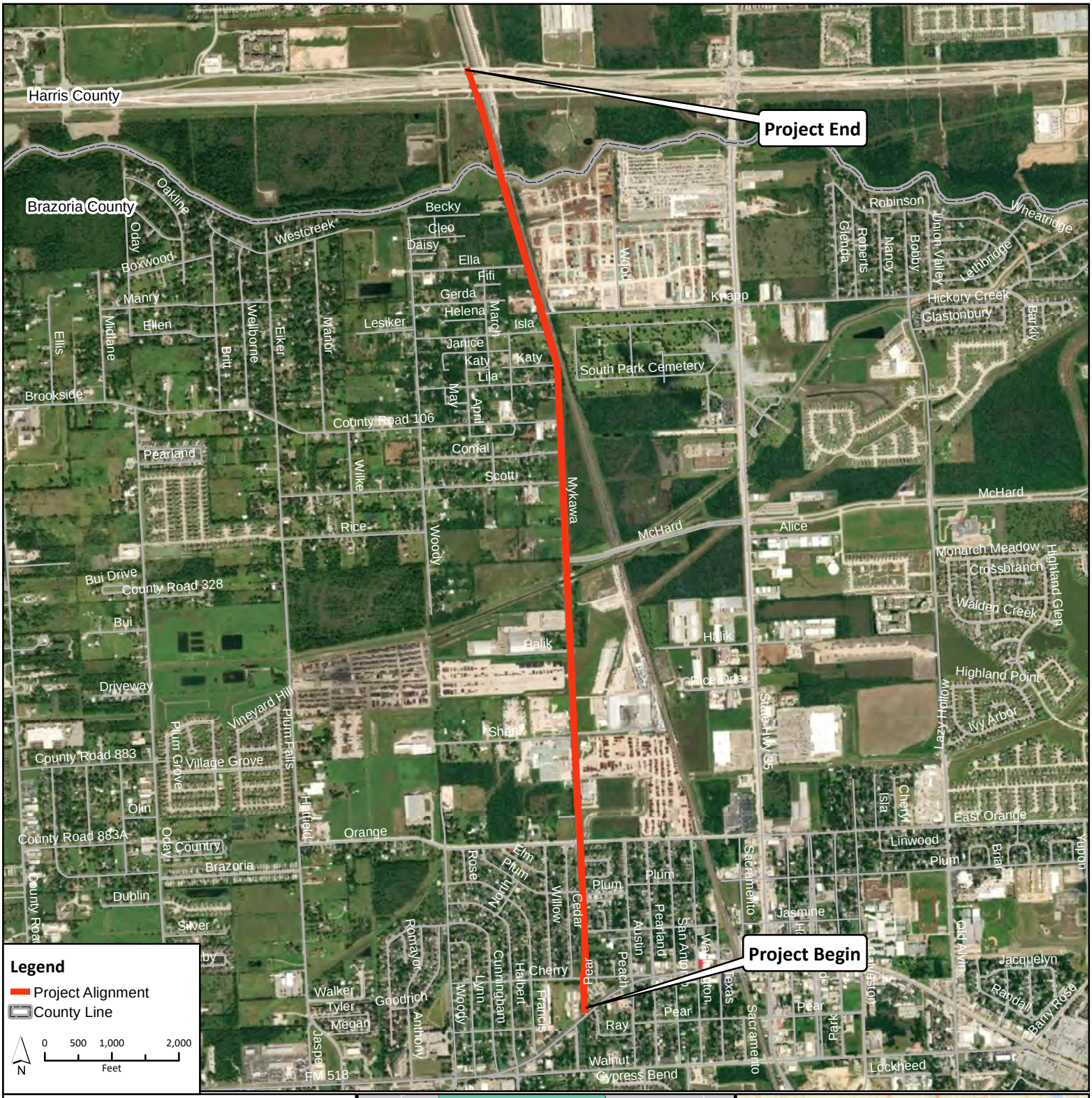
During the construction phase of this project, temporary increases in PM and MSAT emissions may occur from construction activities. The primary construction-related emissions of PM are fugitive dust from site preparation, and the primary construction-related emissions of MSAT are diesel particulate matter from diesel powered construction equipment and vehicles.

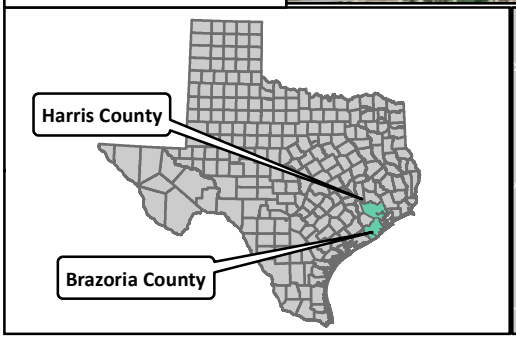
The potential impacts of particulate matter emissions will be minimized by using fugitive dust control measures contained in standard specifications, as appropriate. The Texas Emissions Reduction Plan (TERP) provides financial incentives to reduce emissions from vehicles and equipment. TxDOT encourages construction contractors to use this and other local and federal incentive programs to the fullest extent possible to minimize diesel emissions. Information about the TERP program can be found at: https://www.tceq.texas.gov/airquality/terp.

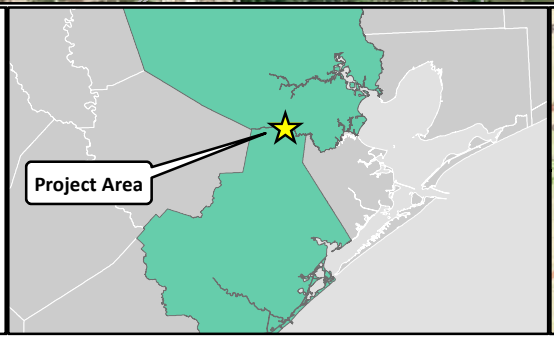
However, considering the temporary and transient nature of construction-related emissions, the use of fugitive dust control measures, the encouragement of the use of TERP, and compliance with applicable regulatory requirements; it is not anticipated that emissions from construction of this project will have any significant impact on air quality in the area.

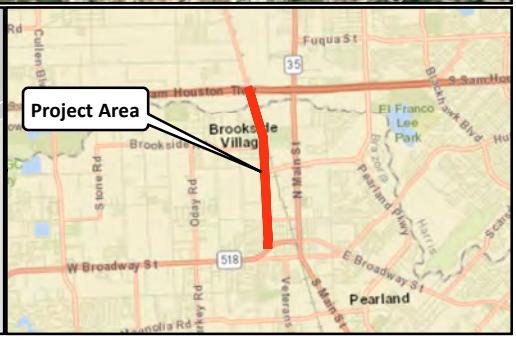
ATTACHMENT A

PROJECT LOCATION









PROJECT LOCATION

Mykawa Road
Brazoria and Harris County, Texas
CSJ No. 0912-31-319 and 0912-72-564

ATTACHMENT B

RTP AND TIP PAGES

REGIONAL INVESTMENT PROGRAMS, EXEMPT AND NOT REGIONALLY SIGNIFICANT PROJECTS IN FIRST TEN YEARS (FY2015-2025)

MPOID	CSJ	County	Sponsor	Facility	From	To	Description	Fiscal Year	Total Project Cost (M, YOE)
THOROUGHFARE DEVELOPMENT									
17147	3538-01-045	Montgomery	TXDOT HOUSTON DISTRICT	SH 242	AT FM 1314		CONSTRUCT GRADE SEPARATION	2018	$ 26.35
7602	0912-00-543	Multiple	CITY OF PEARLAND	MYKAWA RD	SL 8	FM 518	WIDEN FROM 2 TO 4 LANES DIVIDED	2020	$ 51.50
11651		Multiple	CITY OF PEARLAND	WOODFIN RD	500' N OF BROADWAY	SOUTHFORK DR	CONSTRUCT 4-LANE DIVIDED ON NEW ALIGNMENT	2020	$ 14.45
7407	1400-03-006	Waller	TXDOT HOUSTON DISTRICT	FM 1774	GRIMES C/L	MONTGOMERY C/ L	WIDEN TO 4-LANE DIVIDED RURAL	2018	$ 17.21
16079		Waller	WALLER COUNTY	JAMES MUSE PKWY	OWENS RD	BU 290 H	WIDEN FROM 2 TO 4-LANES	2021	$ 7.45
241		Waller	WALLER COUNTY	WOODS RD	US 90	FORT BEND/WALLER C/L	WIDEN FROM 2 TO 4-LANES	2021	$ 12.33
TRANSIT CAPITAL									
13405		Brazoria	UNSPONSORED (TBD)	H-GAC TRANSPORTATION MANAGEMENT AREA	VA	VA	OTHER TRANSIT CAPITAL INVESTMENT (FY 2017-FY 2035)	2018	$ 9.87
11743		Brazoria	GULF COAST CENTER	LAKE JACKSON/ANGLETON	VA	VA	LAKE JACKSON/ANGLETON CAPITAL COST OF CONTRACTING: FY 2017	2018	$ .20
11744		Brazoria	GULF COAST CENTER	LAKE JACKSON/ANGLETON	VA	VA	LAKE JACKSON/ANGLETON CAPITAL ENGINEERING DESIGN: FY 2017	2018	$ .88
11728		Brazoria	GULF COAST CENTER	LAKE JACKSON/ANGLETON UZA	VA	VA	CAPITAL EXPENDITURES FOR PUBLIC TRANSPORTATION, CAPITAL COST OF CONTRACTING: FY 2015	2017	$ .23
11731		Brazoria	GULF COAST CENTER	LAKE JACKSON/ANGLETON UZA	VA	VA	CAPITAL EXPENDITURES FOR PUBLIC TRANSPORTATION, CAPITAL COST OF CONTRACTING: FY 2016	2017	$ .23
16263		Fort Bend	FORT BEND COUNTY	FORT BEND COUNTY	VA	VA	CAPITAL EXPENDITURES FOR PUBLIC TRANSPORTATION FOR FORT BEND COUNTY (FY 2015)	2016	$ 2.40
16266		Fort Bend	FORT BEND COUNTY	FORT BEND COUNTY	VA	VA	CAPITAL EXPENDITURES FOR PUBLIC TRANSPORTATION FOR FORT BEND COUNTY: FY 2016	2017	$ 2.74
16269		Fort Bend	FORT BEND COUNTY	FORT BEND COUNTY	VA	VA	CAPITAL EXPENDITURES FOR PUBLIC TRANSPORTATION FOR FORT BEND COUNTY (FY 2017)	2017	$ 2.63
16272		Fort Bend	FORT BEND COUNTY	FORT BEND COUNTY	VA	VA	CAPITAL EXPENDITURES FOR PUBLIC TRANSPORTATION FOR FORT BEND COUNTY (FY 2018)	2018	$ 2.76

Projects shaded in GRAY are exempt from conformity or are not considered regionally significant under H-GAC regional emissions analysis.

HOUSTON DISTRICT
FY 2020 (SEPT - AUG)

Projects grouped by TxDOT District and Fiscal Year, sorted by County, Hwy, Street and CSJ/MPOID

DISTRICT	COUNTY	CSJ	HWY	PHASE	CITY	PROJECT SPONSOR	YOE COST
HOUSTON	BRAZORIA	0912-00-543	CS	R	PEARLAND	CITY OF PEARLAND	**$1,858,000**

REV DATE: 07/2018
STREET: MYKAWA RD
MPO PROJECT ID: 17082
LIMITS FROM: BW 8
FUNDING CATEGORY: 7
LIMITS TO: FM 518
MTP REFERENCE: 7602
TIP DESCRIPTION: ROW ACQUISITION FOR WIDENING TO 4-LANE BLVD SECTION
REMARKS:

Project History:

Total Project Cost Information:

Preliminary Engineering:	$1,044,000
Right Of Way:	$1,858,000
Construction:	$40,033,000
Construction Engineering:	---
Contingencies:	---
Indirects:	---
Bond Financing:	---
Total Project Cost:	**$42,935,000**

Cost of Approved Phases: $1,858,000

Authorized Funding by Category/Share:

	Federal	State	Regional	Local	Local Contribution	Funding By Category
7-STP-MM:	$1,486,400	---	---	$371,600	---	$1,858,000
Funding by Share:	$1,486,400	---	---	$371,600	---	$1,858,000

HOUSTON	BRAZORIA		CS	C,E,R	ANGLETON	CITY OF ANGLETON	**$6,839,048**

REV DATE: 07/2018
STREET: SHANKS RD
MPO PROJECT ID: 11599
LIMITS FROM: CEMENTARY RD
FUNDING CATEGORY: 3
LIMITS TO: SH 288B/AIRPORT RD
MTP REFERENCE:
TIP DESCRIPTION: RECONSTRUCT TO 3-LANE URBAN SECTION
REMARKS:

Project History:

Total Project Cost Information:

Preliminary Engineering:	$223,439
Right Of Way:	$1,139,993
Construction:	$4,559,973
Construction Engineering:	$227,999
Contingencies:	$455,997
Indirects:	$231,647
Bond Financing:	---
Total Project Cost:	**$6,839,048**

Cost of Approved Phases: $6,839,048

Authorized Funding by Category/Share:

	Federal	State	Regional	Local	Local Contribution	Funding By Category
3-LOCAL:	---	---	---	$6,839,048	---	$6,839,048
Funding by Share:	---	---	---	$6,839,048	---	$6,839,048

HOUSTON	BRAZORIA	0912-00-560	VA	E	PEARLAND	CITY OF PEARLAND	**$985,000**

REV DATE: 07/2018
STREET: CLEAR CREEK TRAIL
MPO PROJECT ID: 7127
LIMITS FROM: UH CLEAR LAKE PEARLAND CAMPUS
FUNDING CATEGORY: 9
LIMITS TO: N OF HUGHES RD
MTP REFERENCE: 7641
TIP DESCRIPTION: ENGINEERING FOR CONSTRUCTION OF 10 FT MULTIUSE TRAIL
REMARKS:

Project History:

Total Project Cost Information:

Preliminary Engineering:	$985,000
Right Of Way:	---
Construction:	$8,023,000
Construction Engineering:	$404,900
Contingencies:	$809,800
Indirects:	$411,378
Bond Financing:	---
Total Project Cost:	**$10,634,078**

Cost of Approved Phases: $985,000

Authorized Funding by Category/Share:

	Federal	State	Regional	Local	Local Contribution	Funding By Category
9-STP-TAP:	$788,000	---	---	$197,000	---	$985,000
Funding by Share:	$788,000	---	---	$197,000	---	$985,000

ATTACHMENT C

TRAFFIC DATA

Texas Department of Transportation

TXDOT
RECEIVED ON
JAN 24 2018
MAIL OPERATIONS HOUSTON

MEMO

January 22, 2019

To: Quincy D. Allen, P.E., District Engineer
Attention: William R. Brudnick, P.E., Director of TPD

Through: William E. Knowles, P.E.
Traffic Analysis Section Director, TPP

From: Michael L. Dutton
Planner, TPP

Subject: Traffic Data
CSJ: 0912-72-564 and 0912-31-319
Mykawa Road
From Beltway 8
To FM 518

Harris and Brazoria Counties

Attached are tabulations showing traffic analysis for highway design for the 2020 to 2040 twenty year period and the 2020 to 2050 thirty year period for the described limits of the route. Also included is a tabulation showing data for use in air and noise analysis.

Please refer to your original memorandum dated November 20, 2018.

If you have any questions or need additional information, please contact Michael L Dutton at (512) 486-5091.

Attachment

CC: Emmanuel Samson, Transportation Analyst, Houston District
Design Division

TRAFFIC ANALYSIS FOR HIGHWAY DESIGN

Houston District **January 22, 2019**

Description of Location	Average Daily Traffic 2020	Average Daily Traffic 2040	Base Year Dir Dist %	Base Year K Factor	Base Year Percent Trucks ADT	Base Year Percent Trucks DHV	ATHWLD	Percent Tandem Axles in ATHWLD	Total Number of Equivalent 18k Single Axle Load Applications One Direction Expected for a 20 Year Period (2020 to 2040) Flexible Pavement	S N	Rigid Pavement	SLAB
Mykawa Road From Beltway 8 To FM 518 Brazoria County	12,300	18,000	56 - 44	11.2	11.4	8.6	11,800	40	5,598,000	3	7,577,000	8"

Data for Use in Air & Noise Analysis

Vehicle Class	Base Year % of ADT	Base Year % of DHV
Light Duty	88.6	91.4
Medium Duty	3.5	2.6
Heavy Duty	7.9	6.0

Description of Location	Average Daily Traffic 2020	Average Daily Traffic 2050	Base Year Dir Dist %	Base Year K Factor	Base Year Percent Trucks ADT	Base Year Percent Trucks DHV	ATHWLD	Percent Tandem Axles in ATHWLD	Total Number of Equivalent 18k Single Axle Load Applications One Direction Expected for a 30 Year Period (2020 to 2050) Flexible Pavement	S N	Rigid Pavement	SLAB
Mykawa Road From Beltway 8 To FM 518 Brazoria County	12,300	20,300	56 - 44	11.2	11.4	8.6	11,900	40	9,034,000	3	12,229,000	8"